



Topical Fire Research Series

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Winter Residential Fires

FINDINGS

- Each year, more than a half million winter fires cause \$3 billion in property loss, 1,900 deaths, and nearly 8,000 injuries.
- Heating is the leading cause of winter fires, whereas cooking is the leading cause over the entire year.
- January is the peak month for residential fire deaths and injuries.
- Winter months put extraordinary strains on firefighter abilities—more hazardous getting to the fire, frozen water supplies, increased risk of injury and dehydration.

Thirty percent of all fires (543,600 averaged over 1996–98) occur during the winter months from November through February. These winter fires average 8,775 injuries, 1,910 deaths, and \$3 billion in property loss each year.

In residences, however, more fires occur in the winter (37%) than in the other two-thirds of the year.¹ As shown in Figure 1, these residential fires are more damaging and deadly than that of all residential fires. This report examines the causes and characteristics of winter fires.

The two leading causes of residential fires in the winter are heating and cooking (Figure 2). This contrasts with the all-year causes where cooking is the the leading cause following by heating.² The increase in

residential heating fires in the winter is not surprising.

Nearly 40% of residential fire-related injuries (6,900) and 50% of residential fatalities (1,700) occur between the beginning of November and end of February. Figure 3 illustrates the numbers of deaths and injuries over the year; January is the peak month for both measures.

With the exception of the difference in cause of residential fire, winter fires are not particularly different from those fires that occur throughout the year. There are slight variations, however, in the area of fire origin. As would be expected by the increase in heating fires, chimney fires, for example, increase during the winter months.

Figure 1. Loss Measures for Winter Residential Fires
(3-year average, NFIRS data 1996–98, all reported fires)

MEASURE	ALL FIRES	WINTER RESIDENTIAL FIRES
Dollar Loss/Fire	\$11,271	\$19,469
Injuries/1,000 Fires	48.0	49.1
Fatalities/1,000 Fires	7.7	9.8

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Figure 2. Leading Causes of Residential Fires
(3-year average, NFIRS data 1996–98)

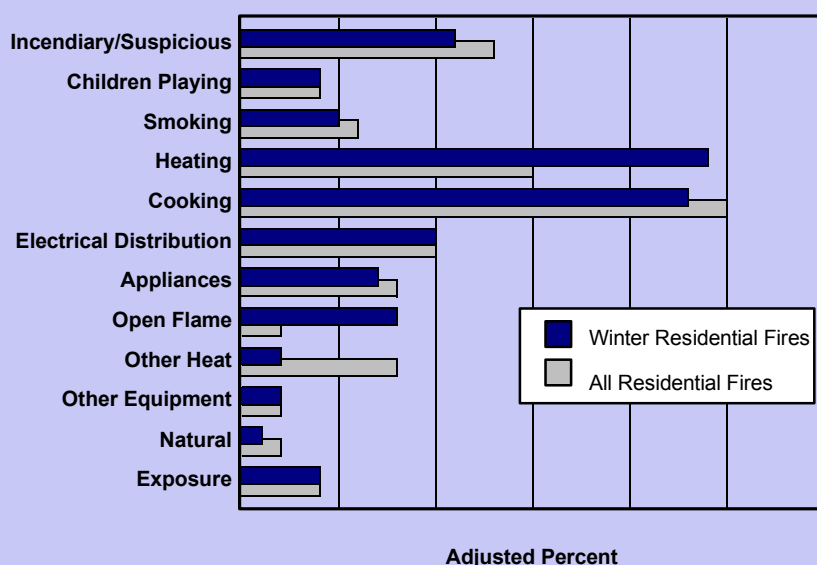
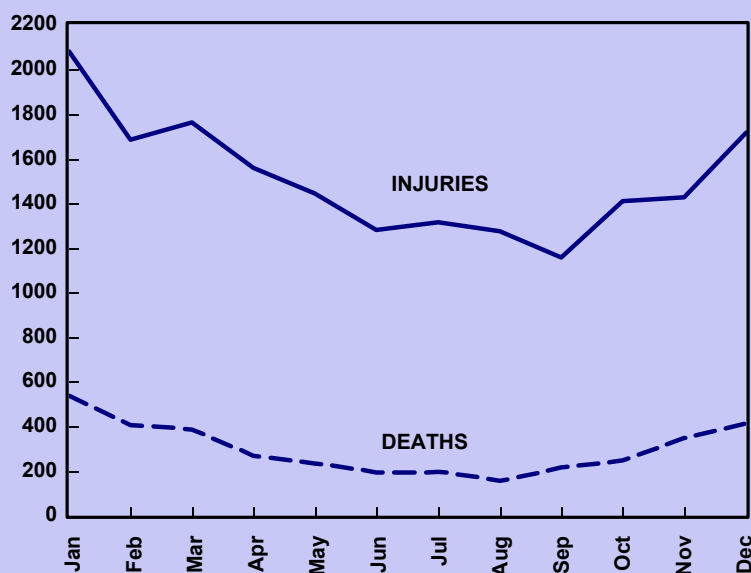


Figure 3. Fire-Related Casualties
(3-year average, NFIRS data 1996–98)



Footnotes

- National estimates are based on National Fire Incident Reporting System (NFIRS) data (1996–1998) and the National Fire Protection Association's (NFPA) annual survey, *Fire Loss in the United States*.
- Fire in the United States, 1987–1996*, U.S. Fire Administration, Federal Emergency Management Agency, 1999.
- "Two Boys Killed in Mattapan House Fire; Blaze is Blamed on Space Heater," *The Boston Globe*, November 26, 2000.
- "Fall River Blaze Kills One, As Hydrants Freeze," *The Boston Globe*, December 28, 2000.
- "Fatal Fire Set on Purpose," *Milwaukee Journal Sentinel*, January 21, 2000.

FIREFIGHTING IN THE WINTER

Extinguishing cold weather fires presents unique challenges to firefighters. Snow and ice can impede the response to the fire. Slippery roads and hazardous conditions affect emergency apparatus in the same manner as any other vehicle. Additionally, since establishing an effective water supply is crucial to extinguishing a fire, firefighters might need to search for a hydrant that is not frozen. Once a water supply has been established, hose lines can become brittle and even break in extreme temperatures.

Firefighting is a physically demanding profession, which is exacerbated by cold weather. Firefighters are at increased risk of injury and dehydration during winter operations.

EXAMPLES

- Two fires ignited by space heaters killed five people in November 2000. Two children were killed when the space heater ignited nearby bedding. In the other instance, a state trooper, his wife, and his mother-in-law died when a space heater ignited nearby materials.³
- Firefighter efforts in an early-morning residential fire were complicated by temperatures in the single digits. Several nearby hydrants were frozen and spray from fire hoses turned to ice. A woman was killed while she slept.⁴
- In January 2001, a man burned paper in a coffee can to keep warm. The table on which the can was resting tipped over and ignited a small fire. The man died in his bed from carbon monoxide poisoning.⁵

To review the detailed methodology used in this analysis, click **METHODOLOGY**